UL 462

STANDARD FOR SAFETY

Heat Reclaimers for Gas-, Oil-, or Solid Fuel-Fired Appliances

UL Standard for Safety for Heat Reclaimers for Gas-, Oil-, or Solid Fuel-Fired Appliances, UL 462

Third Edition, Dated December 13, 2010

Summary of Topics

This revision to UL 462 is being issued to remove the reference to the withdrawal date of UL 873 and to address universal upkeep of UL Standards for Safety. These revisions are considered to be non-substantive and not subject to UL's STP process.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin. Changes in requirements are marked with a vertical line in the margin and are followed by an effective date note indicating the date of publication or the date on which the changed requirement becomes effective.

The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a ″SUPERSEDED REQUIREMENTS″ notice.

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UL 462

Standard for Heat Reclaimers for Gas-, Oil-, or Solid Fuel-Fired Appliances

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Second Edition – September, 1993

Third Edition

December 13, 2010

This UL Standard for Safety consists of the Third Edition including revisions through September 26, 2013.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at http://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 These requirements cover heat reclaimers which are intended to recover a portion of heat from the flue gases of gas-, oil-, or solid fuel-fired appliances for the purpose of heating space or water. They are for installation on the vent or chimney connectors of the appliances which are for attachment to a Type B or Type L vent or a metal or masonary chimney. The heat reclaimers are covered for the maximum flue gas temperature marked on the heat reclaimer, which does not exceed 1000°F (538°C).

1.2 The heat reclaimers are intended for installation by a qualified agency in accordance with the manufacturer's instructions and the Standard for Chimneys, Fireplaces, Vents, and Solid Fuel Burning Appliances, NFPA 211 or with the National Fuel Gas Code, NFPA 54/ANSI Z223.1.

1.3 These heat reclaimers intended for connection to an electrical supply are to be rated 240 volts or less, and are for installation in accordance with the requirements for ordinary locations in the National Electrical Code, NFPA 70.

1.4 Heat reclaimers which include plumbing connections are to be installed in accordance with the applicable plumbing codes.

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

2.2 A component need not comply with a specific requirement that:

a) Involves a feature or characteristic not needed in the application of the component in the product covered by this standard, or

b) Is superseded by a requirement in this standard.

2.3 A component shall be used in accordance with its recognized rating established for the intended conditions of use.

2.4 Specific components are recognized as being incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits and shall be used only under those specific conditions for which they have been recognized.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

5 Glossary

5.1 For the purpose of this standard, the following definitions apply.

5.2 CHIMNEY CONNECTOR – The pipe which connects a fuel-burning appliance to a chimney.

5.3 COMBUSTIBLE MATERIAL, COMBUSTIBLE PRODUCTS, NONCOMBUSTIBLE MATERIALS – These terms, as used in this standard, are defined in the Standard Glossary of Terms Relating to Chimneys, Vents, and Heat-Producing Appliances, NFPA 97M.

5.4 DRAFT DIVERTER – (Also referred to as a Draft Hood.) A device built into a gas burning appliance or made a part of the vent connector from an appliance, which is intended to:

a) Provide for the ready escape of the flue gases from the appliance in the event of no draft, back draft, or stoppage beyond the draft diverter,

b) Prevent back draft from entering the heating appliance, and

c) Neutralize the effect of stack action of the chimney or gas vent upon the operation of the appliance.

5.5 DRAFT REGULATOR, BAROMETRIC – A device which functions to maintain a desired draft in the oil-fired appliance by automatically reducing the chimney draft to the desired value.

5.6 ELECTRICAL CIRCUITS:

a) High-Voltage Circuit – For the purpose of this standard, a circuit involving a potential of not more than 240 volts and having circuit characteristics in excess of those of a low-voltage or an isolated limited secondary circuit.

b) Low-Voltage Circuit – A circuit involving a potential of not more than 30 volts alternating current (ac) [42.4 volts peak or direct current (dc)] and supplied by a primary battery or by a standard Class 2 transformer, or by a combination of transformer and fixed impedance which, as a unit, complies with all the performance requirements for a Class 2 transformer. (A circuit derived from a source of supply classified as a high-voltage circuit, using resistance in series with the supply circuit as a means of limiting the voltage and current, is not considered to be a low-voltage nor an isolated limited secondary circuit.)

c) Safety-Control Circuit – A circuit involving one or more safety controls.

5.7 SOLID FUEL-FIRED APPLIANCE – A heating appliance which has a freestanding fire chamber assembly of the circulating or direct radiation type. Solid fuel units are for attachment to a residential type chimney available for use with low-heat appliances and may be used to burn solid fuels commonly used in fireplaces. These units may be thermostatically controlled.

5.8 VENT CONNECTOR – The pipe which connects a gas-burning appliance to a vent.

CONSTRUCTION

6 Components

6.1 See 2.1 – 2.4 for requirements covering the construction and use of components on the heat reclaimers covered by this standard.

7 Assembly

7.1 All components necessary for the intended function of the heat reclaimer shall be included with the product.

7.2 A joint in the metal surface of a heat reclaimer which forms a passageway for the flue gases shall be tight, as attained by being welded, lock-seamed, riveted, bolted, or equivalent means. A joint shall not depend primarily on cement for tightness.

7.3 A heat reclaimer shall be provided with means other than vent or chimney connection for support of the assembly when it is installed.

7.4 A heat reclaimer for oil- and solid fuel-fired appliances shall include means for cleaning the passageways for flue gases without having to disassemble the heat reclaimer.

7.5 With respect to 7.4, an independently removable access panel that can be removed and replaced by use of conventional tools without moving the heat reclaimer from its installed position is not considered disassembly. When closed, this access panel shall form a tight seal to prevent leakage of flue gases.

7.6 A heat reclaimer shall be constructed so there is no reduction in the total free venting area as compared to the cross-sectional area of a chimney or vent connector pipe on which the heat reclaimer is to be installed. Also, it shall not significantly impede the flow of vent gases. This is to be determined by tests in accordance with Draft Loss Test, Section 28.

7.7 Unless a heat reclaimer that is intended to heat water is limited for installation on a water heating appliance and connected to the appliance such that the temperature of the water is regulated and limited by the controls on the appliance, it shall be provided with means to limit the temperature of the water flowing through the heat reclaimer to 210°F (99°C). See 27.2.1 – 27.2.2.

7.8 If a heat reclaimer is provided with a temperature-operated control for operation of the blower or a pump motor and the control is required to achieve conformance with 6.1.7, the temperature operated control shall comply with the Standard for Limit Controls, UL 353.

7.9 The heat exchanger of a heat reclaimer intended to heat water shall be of sufficient strength to withstand the Hydrostatic Strength Test as described in Section 29.

8 Materials

8.1 The outer casing or jacket of a heat reclaimer shall be made of steel or equivalent material, reinforced or formed if necessary, so that it is not likely to be damaged through handling in shipment, installation, and use. Sheet metal casings shall be made of steel having a minimum thickness of 0.020 inch (0.51 mm) if uncoated, or 0.023 inch (0.58 mm) if galvanized, or of nonferrous sheet metal having an average thickness of not less than 0.029 inch (0.74 mm), and all surfaces shall be protected against corrosion. The finish on the outer casing or jacket of the heat reclaimer shall not be damaged by heat during any of the tests.

8.2 A flueway of a heat reclaimer shall be constructed of cast iron or galvanized sheet steel having thickness of at least 0.032 inch (0.8 mm) for a heat reclaimer up to 16 inches (406 mm) in diameter, whereby the flue collar size determines the size of the heat reclaimer. For a heat reclaimer greater than 16 inches diameter the flueway of the same materials shall be at least 0.056 inch (1.42 mm) thick. Materials which provide equivalent rigidity, strength, durability and resistance to corrosion may be used.

8.3 A flue collar forming part of a heat reclaimer serving as a means of attachment to the vent or chimney connector pipe shall have the rigidity, heat resistance,and corrosion resistance at least equivalent to that of galvanized sheet steel having a thickness of not less than specified in Table 8.1.

Table 8.1
Minimum thickness of flue collars

Diameter of flue collar, inches (mm)	Minimum wall thickness, inch (mm)
Less than 6 (152)	0.019 (0.48)
from 6 (152) to 10 (254)	0.023 (0.58)
over 10 (254) up to 16 (406)	0.029 (0.74)
over 16 (406)	0.056 (1.42)

8.4 A radiation shield or baffle employed to prevent temperatures greater than those specified in Table 25.2 for electrical components shall be so constructed, formed, and supported, for the intended positioning and to prevent distortion or sagging in service. It shall be protected against corrosion and the finish shall not be damaged by heat when the heat reclaimer is tested under these requirements if the deterioration of the finish may cause temperatures greater than those specified in Table 25.2 on parts which it is intended to shield.

8.5 Alloys containing more than 1 percent magnesium shall not be used if the reflectivity of the material is employed to reduce the risk of fire.